

In the Claims:

Kindly amend the claims as indicated.

1. (Currently Amended) A high stability, low emission, invert fuel emulsion composition for an internal combustion engine comprising

purified water;

hydrocarbon petroleum distillate fuel as the continuous phase of the emulsion;

a surfactant package comprising a primary surfactant, a block copolymer stabilizer, and a polymeric dispersant; and

a coupling agent for maintaining phase stability at high temperatures and shear pressures in said internal combustion engine wherein said coupling agent is ~~a one~~ selected from a group consisting of: a di-acid of ~~the a~~ Diels-Alder ~~adducts~~ adduct of unsaturated fatty acids and a tri-acid of ~~the a~~ Diels-Alder ~~adducts~~ adduct of unsaturated fatty acids neutralized with an alkanolamine to form a water soluble salt;

wherein said emulsion has an average droplet size ranging from about 0.1 microns to about 1 micron.

2. (Original) The invert fuel emulsion composition of claim 1 comprising 5-50 wt % purified water and 50-95 wt. % hydrocarbon petroleum distillate fuel.

3. (Original) The invert fuel emulsion composition of claim 1 comprising at least 4000 ppm primary surfactant.

4. (Original) The invert fuel emulsion composition of claim 3 wherein said primary surfactant is an amide.

5. (Original) The invert fuel emulsion composition of claim 4 wherein said primary surfactant is selected from the group consisting of unsubstituted, mono- and di-substituted amides of saturated C₁₂-C₂₂ fatty acids and unsubstituted, mono- and di-substituted amides of unsaturated C₁₂-C₂₂ fatty acids,

wherein said mono and di substituted amides are substituted by substituents

selected, independently of each other, from the group consisting of straight and branched, unsubstituted and substituted alkyls having 1 to 4 carbon atoms, straight and branched, unsubstituted and substituted alkanols having 1 to 4 carbon atoms, and aryls.

6. (Original) The invert fuel emulsion composition of claim 5 wherein said primary surfactant is a 1:1 fatty acid diethanolamide of oleic acid.

7. (Original) The invert fuel emulsion composition of claim 1 comprising from about 1,000 ppm to about 5,000 ppm block copolymer.

8. (Original) The invert fuel emulsion composition of claim 7 wherein said block copolymer is an EO/PO block copolymer.

Claims 9-10 (Canceled)

11. (Original) The invert fuel emulsion composition of claim 1 comprising about 100 ppm to about 1,000 ppm polymeric dispersant.

12. (Canceled)

13. (Currently Amended) The invert fuel emulsion composition of claim 1 comprising

10-50% purified water;

50-90% hydrocarbon petroleum distillate fuel;

at least 4000 ppm amide primary emulsifier surfactant;

between about 2000 and about 3000 ppm EO/PO block polymer copolymer; and

between about 600 and about 800 ppm polymeric dispersant.

14. (Currently Amended) The invert fuel emulsion composition of claim 13 wherein said amide primary surfactant is a 1:1 fatty acid diethanolamid diethanolamide.

Claims 15-16 (Canceled)

17. (Currently Amended) The invert fuel emulsion composition of claim 1 wherein said coupling agent ~~comprises a di-acid of the Diels Alder adducts of unsaturated fatty acids selected is said di-acid.~~

18. (Currently Amended) The invert fuel emulsion composition of claim 1 wherein said coupling agent comprises a tri-acid of the Diels-Alder adducts of unsaturated fatty acids selected is said tri-acid.

19. (Cancelled)

20. (Currently Amended) An additive package for use in a fuel emulsion for an internal combustion engine comprising a primary surfactant, a block copolymer acting as a surfactant stabilizer, a polymeric dispersant, a coupling agent for maintaining phase stability at high temperatures and shear pressures in said internal combustion engine and water, wherein said emulsion has an average droplet size ranging from about 0.1 microns to about 1 micron and wherein said coupling agent is ~~a~~~~one~~ selected from a group consisting of: a di-acid of ~~the~~ a Diels-Alder adducts adduct of unsaturated fatty acids and a tri-acid of ~~the~~ a Diels-Alder adducts— adduct of unsaturated fatty acids neutralized with an alkanolamine to form a water soluble salt.

21. (Original) The additive package of Claim 20 comprising about 3,000 to about 10,000 parts per million of said fuel emulsion of primary surfactant.

22. (Original) The additive package of Claim 21 comprising about 5,000 to about 6,000 parts per million of said fuel emulsion of primary surfactant.

23. (Original) The additive package of claim 20 wherein said primary surfactant is an amide.

24. (Original) The additive package of claim 22 wherein said primary surfactant is selected from the group consisting of unsubstituted, mono- and di-substituted amides of saturated C₁₂-C₂₂ fatty acids, unsubstituted, mono- and di-substituted amides of unsaturated C₁₂-C₂₂ fatty acids, and mixtures thereof,
wherein said mono and di substituted amides are substituted by substituents

selected, independently of each other, from the group consisting of straight and branched, unsubstituted and substituted alkyls having 1 to 4 carbon atoms, straight and branched, unsubstituted and substituted alkanols having 1 to 4 carbon atoms, and aryls.

25. (Original) The additive package of claim 22 wherein said primary surfactant is a 1:1 fatty acid diethanolamide of oleic acid.

26. (Original) The additive package of Claim 20 comprising about 1,000 to about, 5,000 parts per million of said fuel emulsion of block copolymer.

27. (Original) The additive package of Claim 26 comprising about 2,000 to about 3,000 parts per million of said fuel emulsion of block copolymer.

28. (Original) The additive package of claim 20 wherein said block copolymer is an EO/PO block copolymer.

Claims 29-31 (Canceled)

32. (Currently Amended) The additive package of claim 20 ~~wherein said surfactant stabilizer is comprised of~~ further comprising a polymeric dispersant comprising one or more components selected from ~~the~~ a group consisting of polymeric dispersants, wetting agents, amine oxides, bio-polymer surfactants, amine othoxilates, and dinonylphenol ethoxylates.

33. (Currently Amended) The additive package of claim 32 ~~wherein said surfactant stabilizer comprises~~ comprising about 100 to about 1,000 parts per million of said fuel emulsion of said polymeric dispersant.

34. (Currently Amended) The additive package of claim 33 ~~wherein said surfactant stabilizer comprises~~ comprises about 600 to about 800 parts per million of said fuel emulsion of polymeric dispersant.

35. (Canceled)

36. (Previously Presented) The additive package of claim 32 wherein said wetting agent is comprised of a decyne diol nonfoaming wetter.

Claims 37-38 (Canceled)

39. (Original) The additive package of claim 20 further comprising an antifreeze.

40. (Original) The additive package of claim 39 wherein said antifreeze is an organic alcohol.

41. (Original) The additive package of claim 40 wherein said antifreeze is methanol.

42. (Original) The additive package of claim 20 further comprising an ignition delay modifier.

43. (Original) The additive package of claim 42 wherein said ignition delay modifier comprises one or more compounds selected from the group consisting of nitrates, nitrites and peroxides.

44. (Original) The additive package of claim 43 wherein said ignition delay modifier comprises 2-ethylhexylnitrate.

45. (Original) The additive package of claim 43 wherein said ignition delay modifier comprises ammonium nitrate.